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Epigeous macrofungi of the Parque de Natureza de Noudar in Alentejo (Portugal)

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Abstract – This inventory represents the first list of the epigeous macrofungi collected in Parque de Natureza de Noudar (Barrancos, Alentejo, Portugal). Throughout 3 years 162 taxa were registered, from which 8 are new species for Portugal and 77 for Alentejo. Some of them are considered rare species whereas others have been suggested for conservation status. Full-length weblist on URL: http://home.dbio.uevora.pt/~css/

Keywords – fungi, holm oak, mediterranean ecosystem, Iberian Peninsula, sporocarps

Introduction

The cork-oak (*Quercus suber* L.) and holm-oak (*Quercus rotundifolia* Lam. = *Quercus ilex* subsp. *ballota* (Desf.) Samp.) stands are the most frequent agroforestry systems in Alentejo (Portugal). In this region 35% of the total forest area is occupied by holm-oak stands. These ecosystems are known for their biodiversity, namely their richness in macrofungal species (DGF 2001). This study was conducted in the Parque de Natureza de Noudar – Barrancos (38º 08' N and 6º 59' W), Alentejo – where the landscape is dominated by holm-oak stands with different shrub or herbaceous composition and cover. The understory consists of mixed sclerophyllous shrubs, mainly *Cistus* spp., *Lavandula* spp., *Genista* spp., *Myrtus communis* L., *Pistacia lentiscus* L., and natural pasture of annual herbaceous (mostly *Asteraceae*, *Poaceae* and *Fabaceae*). Furthermore, this area shelters a number of rich floral communities, with a long natural history of adaptation to the Mediterranean climate and human activities.

With a total area of 994.5 ha, the Parque de Natureza de Noudar is delimited by the Ardila river and the Múrtega stream. Inserted in a classified area of the

Rede Natura 2000, it forms an ecological group with other protected areas in Spain.

The climate is Mediterranean, with rainy mild winters and hot dry summers. Mean annual rainfall is 525.6 mm and mean annual air temperature 15.8 ºC, with a dry period from May to September (Mendes et al. 1991). The soils are predominantly Luvisols and Leptosols.

Materials and methods

All specimens were collected from November 2004 to April 2007 in 43 plots scattered throughout the different biotopes with a total area of 1.13 ha. Collected specimens were preserved and deposited in the Évora University Herbarium (UEVH- FUNGI).

Plant nomenclature follows Franco (1971). The macrofungal catalogue is arranged alphabetically according to order and genus. Taxonomy and nomenclature follows Kirk et al. (2001) and Kirk (2004–08). Current species distribution area was consulted in: Calonge (1998), CMUL (2002), Hernández-Crespo (2006), Pinho-Almeida & Baptista-Ferreira (1996, 2005) and GBIF (2008). New occurrences for Alentejo are marked with (*) and for Portugal (**).

Results

Over a 3-year period, 68 genera comprising 162 macrofungi species were collected. Of these, 77 represent new records to the Alentejo region, namely: *Agaricus xanthodermus* var. *lepiotoides* Maire, *Agrocybe molesta* (Lasch) Singer, *Amanita ceciliae* (Berk. & Broome) Bas, *Bovista delicata* Berk. & M.A. Curtis, *Bovista dermoxantha* (Vittad.) De Toni, *Calvatia excipuliformis* (Scop.) Perdeck, *Chalciporus piperatus* (Bull.) Bataille, *Clavulina cinerea* (Bull.) J. Schröt., *Clavulina rugosa* (Bull.) J. Schröt., *Clitocybe font-queri* R. Heim, *Clitocybe obsoleta* (Batsch) Quél., *Coprinus alopecia* Lasch, *Cortinarius bulliardii* (Pers.) Fr., *Cystoderma amianthinum* (Scop.) Fayod, *Entoloma cistophilum* Trimbach, *Entoloma hebes* (Romagn.) Trimbach, *Entoloma papillatum* (Bres.) Dennis, *Entoloma serrulatum* (Pers.) Hesler, *Entoloma undatum* (Fr.) M.M. Moser, *Galerina vittiformis* (Fr.) Earle, *Geastrum elegans* Vittad., *Hebeloma cistophilum* Maire, *Helvella leucomelaena* (Pers.) Nannf., *Hydropus floccipes* (Fr.) Singer, *Hygrocybe miniata* (Fr.) P. Kumm., *Hygrophorus arbustivus* Fr., *Inocybe asterospora* Quél., *Inocybe calospora* Quél., *Inocybe cervicolor* (Pers.) Quél., *Inocybe flocculosa* (Berk.) Sacc., *Inocybe fuscidula* Velen. var. *fuscidula*, *Inocybe godeyi* Gillet, *Inocybe napipes* J.E. Lange, *Ileodictyon gracile* Berk., *Lactarius camphoratus* (Bull.) Fr., *Lactarius cistophilus* Bon & Trimbach, *Leccinum corsicum* (Rolland) Singer, *Lepiota clypeolaria* (Bull.) P. Kumm.,

Lepiota griseovirens Maire, *Lepiota oreadiformis* Velen., *Lepiota pseudolilacea* Huijsman, *Lepiota subgracilis* Wasser, *Lepista sordida* (Fr.) Singer, *Lycoperdon lividum* Pers., *Lycoperdon nigrescens* Wahlenb., *Marasmius bulliardii* Quél., *Melanoleuca grammopodia* (Bull.) Murrill, *Mycena abramsii* (Murrill) Murrill, *Mycena aetites* (Fr.) Quél., *Mycena filopes* (Bull.) P. Kumm., *Mycena galopus* var. *nigra* Rea, *Mycena pura* (Pers.) P. Kumm., *Otidea alutacea* (Pers.) Massee, *Panaeolina foenisecii* (Pers.) Maire, *Panaeolus fimicola* (Pers.) Quél., *Parasola auricoma* (Pat.) Redhead et al., *Peziza arvernensis* Boud., *Peziza domiciliana* Cooke, *Peziza succosa* Berk., *Peziza varia* (Hedw.) Fr., *Phaeomarasmius erinaceus* (Pers.) Scherff. ex Romagn., *Pholiota highlandensis* (Peck) A.H. Sm. & Hesler, *Pluteus phlebophorus* (Ditmar) P. Kumm., *Polyporus alveolaris* (DC.) Bondartsev & Singer, *Polyporus meridionalis* (A. David) H. Jahn, *Psathyrella conopilus* (Fr.) A. Pearson & Dennis, *Psathyrella panaeoloides* (Maire) M.M. Moser, *Psathyrella spadiceogrisea* (Schaeff.) Maire, *Rhodocybe nitellina* (Fr.) Singer, *Rickenella fibula* (Bull.) Raithelh., *Russula pseudo-olivascens* Kärcher, *Russula purpurata* Crawshay, *Tarzetta catinus* (Holmsk.) Korf & J.K. Rogers, *Thelephora caryophyllea* (Schaeff.) Pers., *Tremella foliacea* Pers., *Tricholoma saponaceum* (Fr.) P. Kumm. var. *saponaceum* and *Tricholoma squarrulosum* Bres.

Also, within the collected species 8 are new citations to Portugal, specifically: *Clitocybe squamulosoides* var. *meridionalis* Bon, *Entoloma occultopigmentatum* Noordel. & Arnolds, *Hygrophorus eburneus* var. *cossus* (Sowerby) Quél., *Leucoagaricus melanotrichus* (Malençon & Bertault) Trimbach var. *melanotrichus*, *Mycena erubescens* Höhn., *Mycena flavescens* Velen., *Mycena rubromarginata* (Fr.) P. Kumm. var. *rubromarginata* and *Pluteus podospileus* Sacc. & Cub.

Furthermore 6 of the identified species are considered rare within the Iberian Peninsula: *Agaricus porphyrizon* P.D. Orton, *Ileodictyon gracile*, *Lactarius camphoratus*, *Lepiota oreadiformis*, *Leucoagaricus melanotrichus* var. *melanotrichus* and *Phaeomarasmius erinaceus*.

Additionally, *Amanita caesarea* (Scop.) Pers., *Amanita verna* (Bull.) Lam., *Cortinarius orellanus* Fr., *Gyroporus castaneus* (Bull.) Quél. and *Hygrocybe conica* (Scop.) P. Kumm. var. *conica*, also found in the Parque de Natureza de Noudar, have been referred by Prof. Dr. Francisco Calonge as threatened (SMM 2008), thus their conservation status in the Iberian Peninsula needs urgent assessment and legislation.

Conclusions

The high number of new references is undoubtedly due to the scarcity of mycological surveys in Southern Portugal, particularly in Alentejo. In fact, some of these new references correspond to widespread species in the Iberian

Peninsula. On the other hand, some rare or vulnerable species occurred as was expected for this typical Mediterranean ecosystem known by its biodiversity.

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